

## Clean Water Act Compliance Field Review - Grazing Activities – Caribou NF

**Allotment:** Bear Lake C&H

**Forest & District:** Caribou-Targhee NF, Montpelier RD

**Date:** September 25, 2007

**Reviewers:** Dick Scully (IDFG), James Capurso (USFS), Heidi Heyrend (USFS), Corey Lyman (USFS), John Carter (Western Watersheds Project), Bob Edwards (Western Watersheds Project), Gregg Dawson (Idaho Dept. of Agriculture), Jonathan Ratner (Western Watersheds Project), James Laprevote (USFS), Greg Mladenka (IDEQ), Jeff Keetch (Caribou Cattlemen), Warren Colyer (Trout Unlimited), Todd Transtrum (Bear Lake Allotment), Glen Transtrum (Bear Lake Allotment), Marv Robertson (Caribou Cattlemen), Valerie Robertson (Caribou Cattlemen), Ann Keysor (USFS), Jane Rushane (USFS), Kara Kleinschmidt (USFS), Dennis Duehren (USFS), Darren Olsen (USFS), Brad Higginson (USFS), Louis Wasniewski (USFS), Rob Mickelsen (USFS), Damien Miller (USFWS), Brad Transtrum (USFS-retired, Caribou Cattlemen), Lanny K. Weston (President, Caribou Cattlemen), and Val Keetch (Caribou Cattlemen)

**Grazing System:** Adaptive Management: Flexible implementation of a deferred rotation strategy to allow for adjustments and corrections based on monitoring (2005 NEPA Record of Decision pg 2).

**Unit(s) Reviewed:** Beaver Creek Unit      **On Date(s):** 7/15      **Off Date(s)** 9/16

**6<sup>TH</sup> Level Watersheds:** 160102030301 – Beaver Creek      **Streams Examined:** Beaver Creek

**Geology:** Glaciation shaped the Bear River Range. Parent materials are glacial till, drift, and morainal. Cobbles, stones, and boulders of dolomite, limestone, and quartzite (sedimentary) origin are the dominant rock types (1990 Soil Survey of the Caribou NF).

**Soils:** Soils in the depositional areas, riparian zones, and floodplains are primarily formed in mixed alluvium.

**Community Types:** Data from 2004 greenline study: *Salix wolfii*/*Carex aquatilis* ct. (R4-Ecol-89-01 p.78) present 19% of the greenline with *Carex utriculata*, *Carex aquatilis* and *Carex nebrascensis* ct. (present 54% of the greenline). Other species include *Carex microptera* ct. (1%), *Juncus ensifolius* (0.3%), rock (1%), Mesic forb (0.3%), *Salix Boothii* (8%) and *Poa pratensis*/*Agrostis stolonifera* (13%)

**Review Notes:** The Forest completed NEPA (National Environmental Policy Act) analysis on this allotment as part of the South Bear River Range Allotment Management Plan (AMP) Revisions Environmental Impact Statement (EIS) and Record of Decision (ROD) in 2005. An interdisciplinary team identified site-specific forage utilization standards and structural improvements. A 6-inch residual stubble height on *Carex* species within the riparian area (not along the streamside) is the present grazing standard along Beaver Creek. The adaptive management approach allows for adjustments of the grazing standards, grazing strategy, and mitigation measures if monitoring indicates that changes are needed to achieve the desired conditions.

The review team collected end-of-season data at the designated monitoring area (DMA) located along Beaver Creek just upstream of

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intersection of Forest Service Roads 411 and 415. The District established the DMA in 2004 as a “greenline” study to monitor vegetation conditions. The review team measured multiple annual and long-term riparian indicators (Burton et al. 2007) at the DMA.

**Photo 1. The review team at Beaver Creek.**



**Photo 2. The review team discussing riparian grazing monitoring at the DMA.**



### Review of Recent Data and Management:

**2004.** A greenline study (Winward 2000) was established on Beaver Creek on 8/9/2004 (Photo 3). *Salix wolfii* /*Carex aquatilis* ct (R4-Ecol-89-01 p.78) represented 19% of the greenline with *Carex utriculata*, *Carex aquatilis* and *Carex nebrascensis* ct. (present 54% of the greenline). Other species included *Carex microptera* ct. (1%), *Juncus ensifolius* (0.3%), rock (1%), *Mesic forb* (0.3%), *Salix Boothii* (8%) and *Poa pratensis*/*Agrostis stolonifera* (13%). The greenline successional status was at the potential natural community (PNC) and the greenline stability rating was good.

At the end of the grazing season (9/28/2004), the greenline (streamside) stubble height was 6-inches and the riparian area stubble height was 4.8-inches on (Photo 4). The annual operating instructions (AOI) prescribed a 4-inch summer or 5-inch fall stubble height (prior to the 2005 NEPA and updated standards). The permittees met the grazing standards specified in the 2004 AOI.

**2005.** With the 2005 NEPA ROD, the Forest increased the stubble height standard from 4-inch (summer)/5-inch (fall) to a 6-inch riparian area stubble height. The permittees met the 6-inch standard; the end of season riparian stubble height was measured at 6 inches.

**2006.** The permittees again met the 6-inch standard. The end of season stubble height was measured at 8 inches (Photo 5).



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**Photo 3. Beaver Creek DMA on 8/9/2004, looking downstream.**



**Photo 4. Beaver Creek DMA on 9/28/2004; stubble height was 4.8 inches.**



**Photo 5. Beaver Creek DMA on 9/7/2006; stubble height was 8 inches.**



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**2007 In-Season Monitoring.** Heidi Heyrend (USFS) and Todd Transtrum (permittee) performed in-season monitoring at the DMA on 8/13/2007 (Table 1). The permittees are commended for actively participating in the monitoring. The greenline stubble height was 6-inches and the riparian area stubble height was 5-inches (slightly below the 6-inch standard). The permittees began moving livestock out of the unit. There was a lag time on moving all cattle out of the unit and additional use did occur (see end of season monitoring below).

Along with the annual indicators (e.g. stubble height, bank alteration, and woody species use), several long-term indicators were also measured (e.g. bank stability, greenline-to-greenline width, etc. as shown in Table 1). Future repeat measurements in the next 3 to 5 years will be very useful to determine trend, movement towards desired conditions, the success of our grazing strategy, and any adaptive management changes (if necessary). Presently, the amount of stable stream banks (37%) is below desired conditions (at least 80%).

The ecological status in 2004 was measured at “PNC” using the Winward (2000) method. Ecological status in 2007 was measured at “Late” using the MIM (Burton et al. 2007). It is difficult to infer trend from this data due to the method discrepancy.

**Table 1. In-season multiple indicator monitoring (MIM) data for the Beaver Creek DMA; collected on 8/13/2007.**

Median Stubble Height (inches)	Mean Stubble Height (inches)	Bank Alteration (%)	Woody Species Use (%)	Stable Banks (%)	Covered Bank (%)	% Sapling & Young Woody Species	% Mature Woody	% Dead Woody	% Hydric	Erosion Resistance Index
6.00	5.9	29%	21.6%	37%	98%	33%	67%	0%	85%	7.23 - Good
<b>n =</b>	51	60	17	59	59	2	4	0	0	0
<b>95% Confidence</b>	0.8	8%	9%	*	*	*	*	*	*	*
<b>Criteria (set by user):</b>										
>or =	> or =	< or =	< or =	> or =	> or =	> or =	> or =	< or =	> or =	> or =
6	6	25-35%	50%	80%	85%	25%	25%	10%	80%	7
<b>Does not meet criteria:</b>										
				xxxx						

	Ecological Status	Site Wetland Rating	Greenline-Greenline Width (m)	Variation Index (SD/mean depth)	Width to Depth Ratio	% Woody Species	% Hydric Herbaceous	Dominate Key Species for SH	Height of Dom. Key Species
<b>Rating</b>	Late	87: Very Good	2.89	0.22	18	23%	72%	CAUT	6.71
<b>n=</b>	60	60	60	60	59	60	60	31	*
<b>95% CI</b>	*	*	0.18	*	0.19	*		*	*

Substrate			Pools
Percent Fines	Median particle size (mm)	Roughness (n)	Pool Quality Index (0-100)
12%	32.0	0.046	30

**2007 Review and End of Season Data Collection.** The review team repeated the MIM at the DMA (Table 2). However, it is important to note that one team was just upstream of the DMA. One team collected data within the DMA on the river left bank, while the other team collected data just upstream of the DMA on the river right bank. The team also measured the riparian area stubble height at 3 inches.

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Although the permittees began moving cattle out of the unit following the 8/13/2007 measurements, the residual riparian area stubble height was reduced from 5-inches (8/13) to 3 inches (9/25). The greenline median stubble height was also reduced from 6-inches to 3-inches. On the positive side, it does not appear that additional bank alteration or woody species use occurred during that time frame. There was a “lag-time” during livestock movement where additional use on the Carex species occurred.

**Table 2. End of season MIM data for the Beaver Creek DMA; collected during the review on 9/25/2007.**

Median Stubble Height (inches)	Mean Stubble Height (inches)	Bank Alteration (%)	Woody Species Use (%)	Stable Banks (%)	Covered Bank (%)	% Sapling & Young Woody Species	% Mature Woody	% Dead Woody	% Hydric	Erosion Resistance Index
3	4	28%	22.4%	40%	94%	100%	0%	0%	62%	6.91 - Moderate
n =	76	80	24	80	80	4	0	0	80	80
95% Confidence	66.6%	6%	9%	*	*	*	*	*	*	*
<b>Criteria (set by user):</b>										
> or =	> or =	< or =	< or =	> or =	> or =	> or =	> or =	< or =	> or =	> or =
6	6	25-35%	50%	80%	85%	25%	25%	10%	80%	7
<b>Does not meet criteria:</b>										
XXXX	XXXX			XXXX			XXXX		XXXX	XXXX

	Ecological Status	Site Wetland Rating	Greenline-Greenline Width (m)	Variation Index (SD/mean depth)	Width to Depth Ratio	% Woody Species	% Hydric Herbaceous	Dominate Key Species for SH	Height of Dom. Key Species
<b>Rating</b>	Late	83	2.99	0.29	13.91	23%	49%	CANE	3.50
<b>n=</b>	80	80	80	80	80	80	80	68	*
<b>95% CI</b>	*	*	0.19	*	0.19	*		*	*

Pools
Pool Quality Index (0-100)
40

**Summary.** Changes in livestock management are occurring. The riparian grazing standards were recently updated in 2005. The 6-inch riparian stubble height standard has been in place for three years (2005, 2006, & 2007). The permittees met the standard (stubble height was greater than 6 inches) two (2005 & 2006) out of the three years. The effectiveness of the new standard and the overall trend of Beaver Creek are unknown at this time. Future annual monitoring is necessary to ensure that the riparian stubble height standard is met. In addition, clear objectives should be defined and progress towards those objectives should be monitored.

**Recommendations.** Applicable recommendations must fall within current Forest Service regulations and policies. Some of the wording and recommendations of the group were changed to fit that criterion.

1. Continue the annual in-season and end-of season monitoring of riparian stubble height.
2. To determine trend, continue to collect MIM data at the DMA at least every three to five years. It is outstanding that the permit holders are actively participating. If MIM data can be collected more frequently, it would be beneficial in determining the rate of change.

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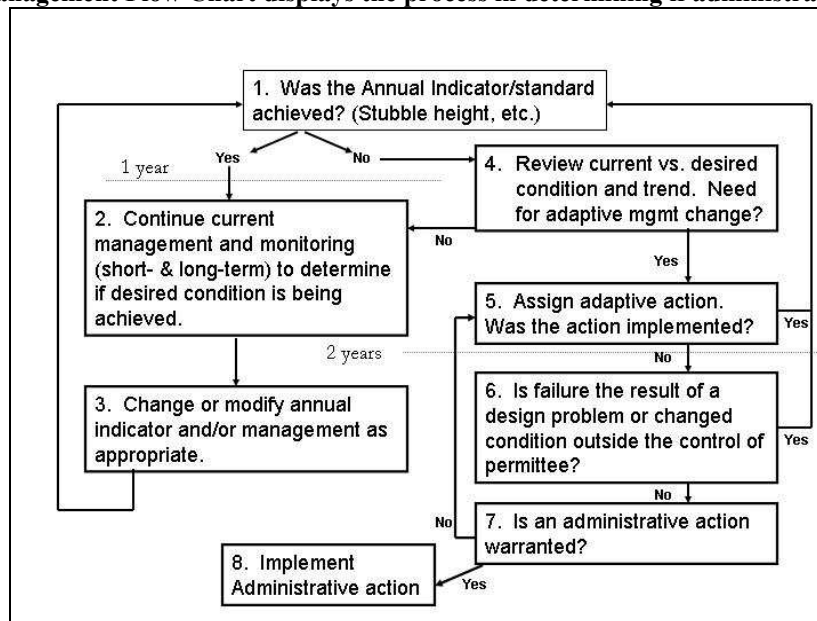
3. For the updated AMP, an interdisciplinary team should develop objective(s) for DMA on the Bear Lake Allotment. The objective(s) should state the component, what is to be accomplished, the amount of change, the location, and a timeframe (USDOI 2006). Possible objectives to consider include:
  - The amount of stable streambanks at the DMA should reach 60% by 2012 and 80% by 2017.
  - The width-depth ratio at the DMA should move to less than 12 by 2012.
  - The greenline to greenline width should decrease to less than 2.5 by 2012.
  - The percent woody species should move from the present 23% to 50% by 2012.
4. Although the riparian stubble height standard was exceeded, no permit action is warranted (Figure 1). A reduction in the long-term indicators (e.g. bank stability) did not appear to occur. However, trend is currently unknown and future monitoring is necessary. A letter to the permittees will occur documenting the adaptive management strategy
5. The adaptive management adjustments for next season (2008) should include the following:
  - Use Franklin Basin area prior to Beaver Creek to reduce the amount of use that occurs along Beaver Creek.
  - Due to the continued use that occurs during “clean-up” of the unit, the permittees may want to begin moving livestock prior to hitting 6-inches. For example, start moving livestock at 8-inches to ensure all cattle are removed before the unit reaches 6-inches. Some members believe this language should be in the AOI.
6. Future adaptive management considerations:
  - Review future MIM data. In years when the 6-inch stubble height is met, is bank alteration high? If so, consider including bank alteration as a trigger for moving livestock. Note: the 2007 data indicates that bank alteration did not change when the AIZ stubble height was reduced from 5-inches down to 3-inches.
  - Consider changing rotation on dry years. If the next pasture was dried out, with little browse available, consider grazing that pasture prior to Beaver Creek, if possible.
  - Compile a log of adaptive management changes with supporting data to document successes and failures. This may be in existing range files.
7. Continue Interdisciplinary participation if monitoring data demonstrates a change in DMA or standards are needed. An interdisciplinary team used the Caribou Grazing Implementation Guidelines to develop the riparian standards for Beaver Creek.
8. Include maps in the updates AMP delineating key monitoring areas. Monitoring locations were mapped during South Bear River Range AMP Revision FEIS/ROD Figure 2-1 page 2-5. Critical winter range/winter range and management prescriptions (Land Use) were delineated in the Revised Forest Plan (2003) and available at [http://www.fs.fed.us/r4/caribou-targhee/projects/caribou\\_plan/index.shtml](http://www.fs.fed.us/r4/caribou-targhee/projects/caribou_plan/index.shtml). Rangeland Monitoring methods are described in the FSH 2209.13. District Rangers are responsible for validation of data collected and any analysis done by non-agency parties (FSM 2200 R4 Supplement 2200-97-1).



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9. Annual grazing indicator was not achieved. The permittees should strive for proper use. The District will manage the allotment through existing administrative procedures. Letters to the Permit holders are pending (see Figure 1).

**Figure 1. Adaptive Management Flow Chart displays the process in determining if administrative action is warranted.**



10. Develop long-term and short-term monitoring rotations for all fish bearing streams on every ranger district; incorporate interdisciplinary team members and utilize the MIM protocol.

### References

- Burton, T.A., E.R. Cowley, S.J. Smith. 2007. Monitoring stream channels and riparian vegetation – multiple indicators, version 3.0. Idaho State Office, BLM and Intermountain Region, US Forest Service. BLM/ID/GI-07/001+1150.
- U.S. Department of the Interior. 2006. Riparian area management: Grazing management processes and strategies for riparian-wetland areas. Technical Reference 1737-20. BLM/ST/ST-06/002+1737. Bureau of Land Management, National Science and Technology Center, Denver, CO. 105 pp.
- Winward, A.H. 2000. Monitoring the vegetation resources in riparian areas. Gen. Tech. Rep. RMRS-GTR-47. Ogden, UT: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station.

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Use the Following Rating Guide and Definitions to Score Each Practice

Implemented	Score
Exceeds objective of practice	5
Meets objective of practice	4
Minor departure from practice	3
Major departure from practice	2
Gross neglect of practice	1

Effective	Score
Improved protection of soil and water over pre-project conditions	5
Adequate protection of soil and water	4
Minor and temporary impacts on soil and water	3
Major and temporary, or minor and prolonged impacts on soil and water	2
Major and prolonged impacts on soil and water	1

Term	Definition
Adequate	Small amount of material eroded; material does not reach ephemeral draws, intermittent and perennial streams, or wetlands
Minor	Erosion and delivery of material to ephemeral draws but not intermittent and perennial streams, or wetlands
Major	Erosion and subsequent delivery of sediment to ephemeral draws, intermittent and perennial streams, or wetlands
Temporary	Impacts expected to last one year or less or no more than one runoff season
Prolonged	Impacts expected to last more than one year or one runoff season

### Project Specific Measures from the ROD & FONSI for the South Bear River Range AMP Revisions EIS – 2005

Project Specific Measure	Implemented	Effective	Notes
Pasture boundary fences would be realigned between the Beaver Creek/Sinks/Egan Basin Units to eliminate funnel effect on an isolated location on Beaver Creek. (ROD, pg 4).	N/A	N/A	In process, not completed yet. The cattle-guards are being put in. Funding sources are being sought for implementation.
<p>The Beaver Creek Corral would be removed. (ROD, pg 4).</p> 	N/A	4	The corral has not yet been removed, but it is no longer being used. The riparian conditions in the area are improving.



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### Project Specific Measures from the ROD & FONSI for the South Bear River Range AMP Revisions EIS – 2005

Project Specific Measure	Implemented	Effective	Notes															
Upland Forage Utilization –Winter Range (ROD, pg3 Table 1). <table><tr><th rowspan="2">Upland Forage Utilization</th><th colspan="3">Upland Area Type</th></tr><tr><th>Critical Winter Range</th><th>Winter Range</th><th>Non-Winter Range</th></tr><tr><td>Grass &amp; Herbaceous (% dry weight)</td><td>35</td><td>45</td><td>55 (ROD) 45 (AOI)</td></tr><tr><td>Shrubs (% annual leader growth)</td><td>10</td><td>20</td><td>35</td></tr></table>	Upland Forage Utilization	Upland Area Type			Critical Winter Range	Winter Range	Non-Winter Range	Grass & Herbaceous (% dry weight)	35	45	55 (ROD) 45 (AOI)	Shrubs (% annual leader growth)	10	20	35			The team did not review upland utilization.
Upland Forage Utilization		Upland Area Type																
	Critical Winter Range	Winter Range	Non-Winter Range															
Grass & Herbaceous (% dry weight)	35	45	55 (ROD) 45 (AOI)															
Shrubs (% annual leader growth)	10	20	35															
Bear Lake C&H Riparian Forage Utilization Site-Specific Standards from the Grazing Implementation Guide (ROD, pg 4, table 4). <table><tr><th>Stream</th><th>Rating</th><th>Forage Utilization Standard</th></tr><tr><td>Beaver Creek</td><td>Functional-At-Risk</td><td>4”/5”/6” AIZ Stubble Height</td></tr></table> <p>The three categories refer to the time of season the livestock are in riparian areas (i.e. early/mid/late summer).</p>	Stream	Rating	Forage Utilization Standard	Beaver Creek	Functional-At-Risk	4”/5”/6” AIZ Stubble Height	2	3	Streamside (greenline) stubble height was 6 inches on 8/13; riparian stubble height was 5 inches. The permittees starting moving cattle out of area. The riparian stubble height decreased to 3 inches by 9/25.									
Stream	Rating	Forage Utilization Standard																
Beaver Creek	Functional-At-Risk	4”/5”/6” AIZ Stubble Height																
A monitoring plan would be developed using FSH 2209 techniques and protocol, implemented and followed to identify the effectiveness of planned activities. Specific locations or “key areas” would be identified for upland areas (this would include existing long-term trend study locations displayed in Chapter 3). The plan would include implementation and effectiveness monitoring (ROD, pg 8, 9, & 10).	3	4	The AMP hasn’t been revised yet, but riparian and upland utilization and conditions are being monitored to guide adaptive management decisions.															

### Applicable Caribou NF Revised Forest Plan Standard and Guidelines

Element	Standards and Guidelines	Implemented	Effective	Notes
Soils – All Ecosystems	Suitability for resource management activities shall be disclosed in the site-specific analysis. (S)	4	4	
Soils – All Ecosystems	Resource developments and utilization should be restricted to lands identified in the Soil Resource Inventory as being capable of sustaining such impacts. (G)	4	4	
Soils – All Ecosystems	Maintain ground cover, microbiotic crusts, and fine organic matter that would protect the soil from erosion in excess of soil loss tolerance limits and provide nutrient cycling. (G)	4	4	
Soils – All Ecosystems	Detrimental soil disturbance such as compaction, erosion, puddling, displacement, and severely burned soils caused by management should be limited or mitigated to meet long-term soil productivity goals. (G)	4	4	Analyzed during the EIS. Under Alternative 4, detrimental soil disturbance ranges from 3 to 8 percent for each activity area. Within the project area as a whole, it is 3 percent. Soil Quality Standards state that no more than 15 percent of an activity area may have detrimentally disturbed soils (ROD pg 11).
Watershed and Riparian Resources	Not more than 30% of any of the principal watersheds and their subwatersheds (6 <sup>th</sup> HUC) should be in a hydrologically disturbed condition at any one time. (G)	4	4	This guideline is more applicable to timber and fuels treatment projects.

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### Applicable Caribou NF Revised Forest Plan Standard and Guidelines

Element	Standards and Guidelines	Implemented	Effective	Notes
Watershed and Riparian Resources	Proposed actions analyzed under NEPA should adhere to the State Nonpoint Source Management Plan to best achieve consistency with both Sections 313 and 319 of the Federal Water Pollution Control Act. (G)	4	4	BMP implementation and effectiveness monitoring is guiding adaptive management decisions. Idaho DEQ has identified Beaver Creek as fully supporting the beneficial uses of coldwater aquatic life and secondary contact recreation (2002/2003 integrated report).
Grazing Management – Range Resources	Where water is developed at springs and seeps, return water to point of origin after livestock leave unit, if possible. (G)	N/A	N/A	The review team did not evaluate any water developments.
Grazing Management – Range Resources	Seeding or establishment of monocultures should be avoided, and efforts should be made to establish and/or maintain a variety of desirable grass, forbs, and shrub species.	4	4	The Forest is conducting tall forb transplant projects, seeding plots, and test plots to increase tall forb diversity in the Franklin Basin area.
Grazing Management – Livestock Grazing Permits	Permittees may be allowed motorized access to maintain or develop range improvements assigned in their grazing permits or for other authorized administrative activities. AMPs and AOIs should include direction to comply; travel permits should be issued to authorize this use. (G)	4	4	The review team did not observe any problem areas.
Aquatic Influence Zone (AIZ) – General Riparian Area Management	Use herbicides, pesticides, and other toxicants and chemicals only as needed to maintain desired AIZ attributes. (G)	4	4	Very little treatment occurs in the AIZ/riparian area. When treatment does occur, it is to treat noxious and invasive weeds.
AIZ – Grazing Management	The most current version of the Caribou Riparian Grazing Implementation Guide (GIG) shall be used for the primary source of direction for grazing in Forest riparian areas and shall be incorporated during allotment management planning. (S)	4	4	The GIG is currently being implemented. Review MIM data. A interdisciplinary team used the GIG to set the riparian grazing standards along Beaver Creek.
AIZ – Grazing Management	Where feasible, relocate or close existing livestock handling facilities that will not maintain progress towards desired AIZ attributes. (G)	4	4	Closed Beaver Creek corral. It will be removed soon. The riparian conditions improving.

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### R1/R4 FSH 2509.22, Chapter10 - Soil and Water Conservation Practices

Practice	Objective and Implementation	Implemented	Effective	Notes
17.01 – Range Analysis, Allotment Management Plan, Grazing Permit System, and Permittee Operating Plan	<p>To maintain and protect soil and water resources through sustained forage production and managed multiple use of range forage.</p> <p><u>Implementation:</u></p> <ul style="list-style-type: none"> <li>Allotment is NEPA sufficient (if yes, give date) and AMP is sufficient (if yes, give date)</li> <li>Preparation and approval of AMP</li> <li>Revise AMP as needed</li> <li>AOI prepared or revised (as needed) annually to adjust for current allotment conditions and trends and to incorporate special instructions</li> <li>Permittee carries out the plan</li> <li>Corrective action is taken if permittee does not comply with permit conditions designed to protect soil and water resources.</li> </ul>	4 – overall	4 – overall	NEPA was completed in 2005. The AMP will soon be revised as a result.
		2 – AIZ stubble height	3 – AIZ stubble height	The 2007 AOI specified a 6-inch stubble height standard for Beaver Creek. The end of season stubble height was measured at 3 inches in the AIZ. As a result, there were minor & temporary impacts to soil, water, and aquatic resources.
17.02 – Controlling Livestock Numbers and Season of Use	<p>To maintain and protect soil and water resources through management of livestock numbers and season of use.</p> <p><u>Implementation:</u></p> <ul style="list-style-type: none"> <li>Proper stocking rates and season of use specified in the grazing permit.</li> <li>Annual field checks are made to identify needed adjustments: range readiness evaluations, livestock counts, forage &amp; browse utilization, and periodic assessments of rangelands (soil and veg. trends)</li> <li>Permit is modified, cancelled, or suspended if needed.</li> </ul>	4	4	District range personnel made annual inspections in 2004, 2005, 2006, and 2007.
17.03 – Controlling Livestock Distribution	<p>To maintain and protect soil and water resources, including riparian areas though controlling livestock distribution.</p> <p><u>Implementation:</u></p> <p>Proper techniques are used to reduce the impact on sensitive or naturally overused areas. Techniques may include:</p> <ul style="list-style-type: none"> <li>Fence construction and use of seasonal or pasture system management</li> <li>Water developments in areas that receive little use and closures of water developments when proper use is achieved.</li> <li>Other Range improvements.</li> <li>Riding &amp; herding to shift livestock locations</li> <li>Placing salt or supplements away from water in forage areas with light grazing use to attract livestock</li> <li>Moving livestock when prescribed utilization levels are reached.</li> <li>Goats and sheep – open herding, limited trailing, and use of new bed grounds nightly.</li> </ul> <p>Direction is incorporated into the AMP and AOI. The AOI reflects current allotment conditions and vegetative trends.</p>	4 – overall	4 – overall	The Beaver Creek corral was closed and will soon be removed.
		2 – AIZ stubble height	3 – AIZ stubble height	The Beaver Creek riparian area was over used in 2007. Efforts will be made next year to improve use in Beaver Creek area (e.g. using the Franklin Basin area before coming to the Beaver Creek area). The permittee may consider moving livestock out of the area prior to hitting 6-inches of stubble so that the end of season stubble height of 6-inches will be met (due to the delay time of moving stock).

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### R1/R4 FSH 2509.22, Chapter10 - Soil and Water Conservation Practices

Practice	Objective and Implementation	Implemented	Effective	Notes
17.04 – Rangeland Improvements	<p>To maintain and protect soil and water resources the use of rangeland improvements.</p> <p><u>Implementation:</u></p> <p>Improvements are recognized in the allotment planning process. Improvements are used to improve management and restore or improve forage quality, quantity, or availability. Improvements may include:</p> <ul style="list-style-type: none"> <li>• Rest and/or deferment through rotation grazing, fencing, or lighter grazing use by changing the grazing season, kind, class, or permitted number of livestock.</li> <li>• Stream stabilization projects</li> <li>• Reseeding, fertilization, and/or other non-structural improvements</li> <li>• Water developments</li> <li>• Interdisciplinary teams provide consultation on improvements and they are constructed in manner that protects surface and ground water quality</li> </ul>	4	4	Interdisciplinary team has been involved in adaptive management recommendations.

### R4 Soil Management Handbook, FSH 2509.18 – Chapter 2 – Soil Quality Monitoring

Practice	Objective and Implementation	Implemented	Effective	Notes
Detrimental Soil Disturbance <sup>1</sup>	No more than 15% of an activity area should have detrimentally disturbed soil after the completion of all management activities. In other words, at least 85% of an activity area should be in a non-detrimentally disturbed condition.	4	4	Alternative 4, detrimental soil disturbance ranges from 3 to 8 percent for each activity area. Within the project area as a whole, it is 3 percent. Soil Quality Standards state that no more than 15 percent of an activity area may have detrimentally disturbed soils. (ROD pg11)
Effective Ground Cover	<p>The minimum effective ground cover, following the cessation of disturbance in an activity area, should be sufficient to prevent detrimental erosion. Detrimental erosion includes erosion rates that cause long-term productivity losses from an activity area or soil losses that are beyond those acceptable for the activity area.</p> <p>Minimum amounts of ground cover necessary to protect a soil from erosion are a function of soil properties, slope gradient and length, and erosivity (precipitation factor).</p>	4	4	

<sup>1</sup> Discuss the proper scale of the activity area (e.g. allotment, pasture, riparian areas ....). Activity Area is define in the handbooks as “an area impacted by a land management activity, excluding specified transportation facilities, dedicated trails, and mining excavations and dumps. Activity areas include such areas as: harvest units within timber sale areas and prescribed burn areas. Riparian and other environmentally sensitive areas may be monitored and evaluated as individual activity areas within larger management areas. It is recommended to describe the Activity Area for soil resources within planning and project implementation documents.”